

KUBRICKY CONSTRUCTION CORP.  
269 BALLARD ROAD

WILTON, NY 12831  
518 792-5864




Rutland City BRF 3000 (2014036)  
SUBMITTAL 55

Issued 04/16/15  
Respond by 04/23/15

To  
Timothy Pockette, PE

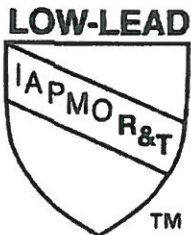
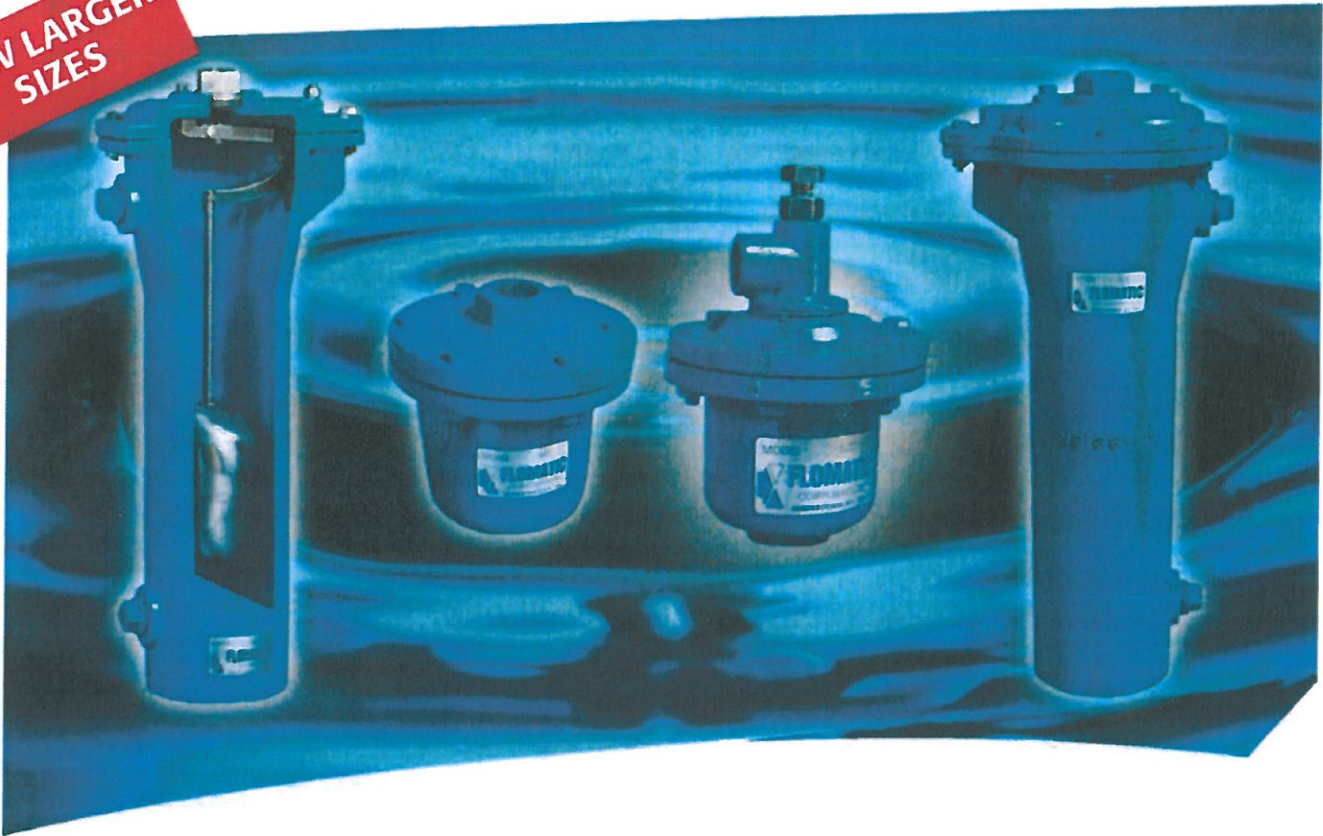
Topic	900.640 Pressure Air Release Valve for 6" Force Main on Bridge
Status	For Approval
Spec section	900.640
Responsibility	(16) River Street
Received from submitter	4/16/15
Sent to approver	4/16/15
Required from approver	4/23/15

From  
Volker H.D. Burkowski

Signed by		Date	4/16/15
Proceed as Indicated	Owner Authorized Representative	Date	

**FLOMATIC® VALVES**

**NEW LARGER  
SIZES**



## **Air Release and Vacuum Valves** *Industrial and Municipal Applications*

- |             |                 |
|-------------|-----------------|
| ■ Miniair®  | ■ Sewair-Mini®  |
| ■ Maxiair®  | ■ Sewair-Maxi®  |
| ■ Wellair®  | ■ Sewair-Dual®  |
| ■ Comboair® | ■ Sewair-Combo® |

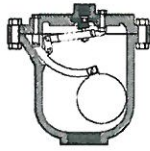
**Flomatic Valves**

*High Quality Valves Built to Last...*



## MINIAIR® PRESSURE AIR RELEASE VALVES

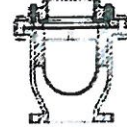
- Vents accumulating air while system is under pressure. Improves flow and pump efficiency.
- Meets C-512 ANSI/AWWA Standard
- 3/8" thru 4".
- Cast Iron Body 3/8" thru 2" with Stainless Steel Trim; 3" and 4" with Bronze Trim and Stainless Steel Float. BUNA-N Seat.
- Install on high points of pipeline and approximately Every 2000 feet of horizontal segments of pipe.
- Standard orifice is 1/4" for working pressure max 175 PSI.



PART NO.	INLET	OUTLET	PART NO.	INLET	OUTLET
6500	3/8"	3/8"	6503	1"	1/2"
6501	1/2"	1/2"	6504	2"	1/2"
6502	3/4"	3/4"			

## MAXIAIR® AIR AND VACUUM VALVES 1/2" THRU 16"

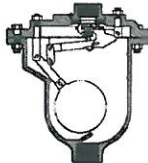
- Vents large quantities of air when filling pipeline. (Automatically closes.)
- Meets C-512 ANSI/AWWA Standard
- Improves system fill ratio
- Allows air to re-enter pipeline preventing a vacuum, pipeline collapse, or water column separation.
- Cast Iron Body with Stainless Steel Trim. BUNA-N Seat.
- Install on high points of pipelines and changes in grade.



PART NO.	INLET	OUTLET	PART NO.	INLET	OUTLET
6520	1/2"	1/2"	6523	3"	3"
6521	1"	1/2"	6524	4"	4"
6522	2"	2"	6525	6"	6"

## COMBOAIR® AIR RELEASE/VACUUM VALVES - DUAL ORIFICE

- Performs function of both Air and Vacuum Valves and Pressure Air Release Valves in one valve body.
- Meets C-512 ANSI/AWWA Standard
- Compact design reduces cost and saves space.
- 1" thru 8"
- Cast Iron Body, 1" and 2" with Stainless Steel Trim, 3" thru 8" with Bronze Trim and Stainless Steel Float. BUNA-N Seat.
- Install on high points of pipeline.



PART NO.	INLET	OUTLET	PART NO.	INLET	OUTLET
6540	1"	1"	6542	3"	3"
6541	2"	2"	6543	4"	4"

## WELLAIR® DEEP WELL AIR VALVES

- Vents air during pump start-up.
- Meets C-512 ANSI/AWWA Standard
- Allows air back into pump riser pipe on pump shut down.
- Throttling device prevents float chatter and hammer. Reduces initial velocity of water column. (On Pump Start Up.)
- 1/2" thru 6" Cast Iron Body with Stainless Steel Trim. BUNA-N Seat. Surge check valve recommended with Wellair® - (see below)
- Install on discharge of pump.



PART NO.	INLET	OUTLET	PART NO.	INLET	OUTLET
6560	1/2"	1/2"	6562	2"	2"
6561	1"	1"	6563	3"	3"

## SURGE CHECK VALVES

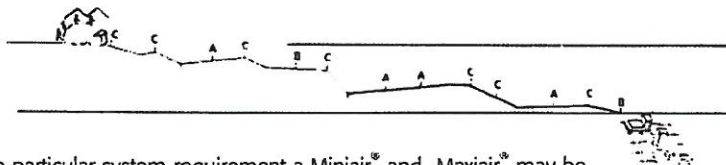
- Controls rate of flow of water into MaxiAir®, Wellair®, or ComboAir®. Mounts on inlet of air and vacuum valve to prevent air release valve damage from a surge, due to quick closing valve.
- 3" thru 12"
- Cast Iron Body with Stainless Steel and Bronze Trim. BUNA-N Seat.
- Install on high points of pipeline with flow velocities of 10 feet per second or greater. Also install on discharge of high volume pumps, and near any quick closing valves.



Surge Check Shown with MAXIAIR®

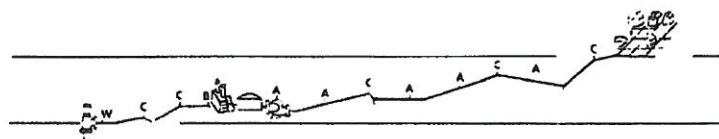
## TYPICAL VALVE PLACEMENT IN A GRAVITY FEED WATER SUPPLY SYSTEM For Particular Applications Consult Factory

A-MINIAIR®  
B- MAXIAIR®  
C- COMBOAIR®  
S- SURGE CHECK  
A- WELLAIR®



**NOTE:** Due to particular system requirement a MiniAir® and MaxiAir® may be required in place of a ComboAir®. A ComboAir® may also be required in place of MiniAir®.

A-MINIAIR®  
B- MAXIAIR®  
C- COMBOAIR®  
S- SURGE CHECK  
A- WELLAIR®



**NOTE:** Due to particular system requirement a MiniAir® and MaxiAir® may be required in place of a ComboAir®. A ComboAir® may also be required in place of MiniAir®.



## AIR AND VACUUM VALVE SIZING

1. Determine liquid flow capacity in the pipe line.

2. Determine rate which air will exhaust in CFM.

$$CFM = \frac{Q}{7.48} \quad \begin{matrix} Q = \text{Flow in gallons per minute} \\ CFM = \text{Cubic feet per minute of exhaust air} \end{matrix} \quad \sqrt{SD^5}$$

$$\text{Flow due to gravity} \quad CFM = \frac{C}{21.27} \quad \begin{matrix} S = \text{Slope (decimal)} \\ D = \text{Dia. in inches} \end{matrix}$$

$$C = \text{Chezy's coef.} = 110$$

3. Enter chart with the air discharge rate and use a pressure differential no greater than 2 PSI. Pick off valve size.

4. If there is a risk of pipe collapse from vacuum, the maximum tolerable pressure differential must be determined.

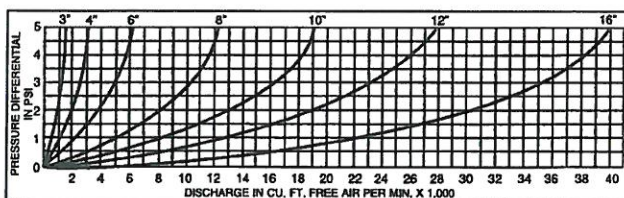
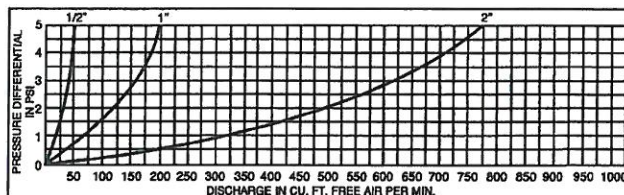
$$P = 16,250,000 \left( \frac{T}{D} \right)^3$$

$$\begin{matrix} P = \text{Collapse Pressure (psi)} \\ T = \text{Pipe Wall thickness in inches.} \\ D = \text{Pipe diameter in inches.} \end{matrix}$$

5. Use this maximum pressure differential or 5 PSI whichever is lower and enter the chart with the differential or 5 PSI whichever is lower and enter the chart with the differential pressure and CFM during draining. Pick off valve size.

6. Use the larger of the two valves determined for this system.

**NOTE: Consider each change in grade independently.**



## PRESSURE AIR RELEASE VALVE SIZING

The sizing of an air release valve is primarily a judgmental selection based upon experience and knowledge of air discharge rates which can be expected under certain field parameters.

As a rule of thumb, the following percentages of flow volume may be considered the expected air accumulation rate for sizing the pressure air release valve.

0 - 1000 GPM. ÷ 7.48 gal/cu. ft. x 6% = cfm.  
 1000 - 2000 GPM. ÷ 7.48 gal/cu. ft. x 5% = cfm.  
 2000 - 5000 GPM. ÷ 7.48 gal/cu. ft. x 2% = cfm.  
 5000 - 50000 GPM. ÷ 7.48 gal/cu. ft. x 1.5% = cfm.  
 50000 and greater ÷ 7.48 gal/cu. ft. x 1.2% = cfm.

Required orifice size is determined from the chart at the operating pressure and anticipated air volume accumulation rate.

Once the orifice size has been determined the appropriate valve should be selected from the table according to orifice size and operating pressure. Where greater air accumulations are expected or field conditions dictate, larger valve body sizes should be used.

When operating pressure and discharge capacity dictate the necessary orifice size as being smaller than the standard, use the standard orifice.

Valves may be grouped in clusters to accommodate an excessive air discharge requirement at high pressures.

### ORIFICE SIZE FOR VARIOUS PRESSURE RANGES

Valve Size	OPERATING PRESSURE IN LBS.					
	0 to 50	0 to 100	0 to 150	0 to 200	0 to 250	0 to 300
3/8", 1/2", 3/4"	1/8"	1/16"	1/16"	3/64"	1/32"	1/32"
1"	5/16"	5/16"	1/4"	3/16"	5/32"	1/8"
2"	3/8"	3/8"	5/16"	1/4"	3/16"	5/32"
2 1/2"	5/8"	1/2"	7/16"	3/8"	5/16"	1/4"
3"	3/4"	5/8"	1/2"	7/16"	5/16"	1/4"
4"	1"	3/4"	5/8"	1/2"	7/16"	3/8"

### PRESSURE SEWAGE VALVE

Standard orifice is 1/4" for working pressure 0-175 PSI.  
 For other working pressures consult factory.

**Refer to Individual Valve Specification Sheets  
for Detailed Dimensions**

### Discharge in Cubic Feet of Free Air Per Minute

Operating Pressure psig	Orifice Size in Inches								
	1/32"	3/64"	1/16"	5/64"	3/32"	7/64"	1/8"	9/64"	5/32"
50	.6	1.3	2.4	3.7	5.3	7.3	9.6	12.1	14.9
100	1.1	2.4	4.2	6.6	9.5	12.9	16.9	21.3	26.3
150	1.5	3.4	6.1	9.6	13.8	18.6	24.4	30.8	37.9
200	2.0	4.5	8.1	12.4	17.9	24.4	31.9	40.3	49.5
250	2.5	5.5	9.9	15.3	22.1	30.0	39.2	49.5	61.1
300	3.2	7.1	11.8	18.4	26.4	35.8	46.7	58.9	73

Operating Pressure psig	Orifice Size in Inches								
	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
50	21.4	38.1	59	86	117	153	237	343	610
100	37.7	68	105	152	205	270	422	607	1080
150	54.6	98	152	220	298	390	592	855	1520
200	72	127	198	287	390	510	796	1147	2038
250	88	157	244	352	480	627	980	1410	2506
300	105	187	290	420	572	746	1167	1679	2985



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**Flomatic Valves**  
*High Quality Valves Built to Last...*

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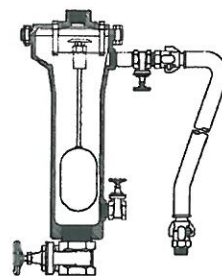
Rev. 2/14



## SEWAI<sup>®</sup> MAXI AIR AND VACUUM SEWAGE VALVES

- Vents large quantities of air when filling pipelines.
- Allows air to re-enter pipeline preventing a vacuum.
- Long body design to prevent solids from coming in contact with working parts.
- Backflushing attachment for cleaning valves available.
- 2" thru 8".
- Cast Iron Body with Stainless Steel Trim. BUNA-N Seat.
- Install on high points of pipelines and changes in grade.

PART NO.	INLET	OUTLET
6620	2"	1"
6621	2"	2"
6622	3"	3"
6623	4"	4"
6624	6"	6"

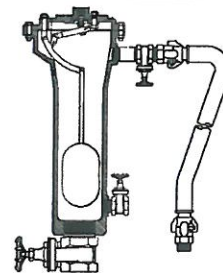


SEWAI<sup>®</sup> AIR/VACUUM VALVE SHOWN WITH OPTIONAL BACKFLUSH ATTACHED

## SEWAI<sup>®</sup> MINI PRESSURE SEWAGE AIR RELEASE VALVES

- Vents accumulating air and gases while system is under pressure. Improves flow and pump efficiency.
- Long body design prevents solids from coming in contact with working parts.
- Backflushing attachment for cleaning valve available.
- 2" thru 6"
- Cast Iron Body with Stainless Steel Trim. BUNA-N Seat.
- Install on high points of pipeline and every 2000 feet of horizontal segments of pipe.

PART NO.	INLET	OUTLET
6600	2"	1/2"
6601	3"	1/2"

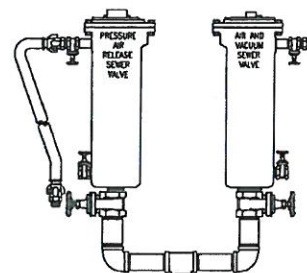


SEWAI<sup>®</sup> PRESSURE AIR RELEASE VALVE SHOWN WITH OPTIONAL BACKFLUSH ATTACHED

## SEWAI<sup>®</sup> DUAL COMBINATION AIR RELEASE/VACUUM SEWAGE VALVES - DUAL ORIFICE -

- Air/Vacuum and Pressure Air Release Valves shown above piped together to provide air release and vacuum protection at high point of pipeline.
- 2" thru 8"
- Install on high points of pipeline.

PART NO.	INLET	OUTLET
6640	2"	1"
6641	2"	2"

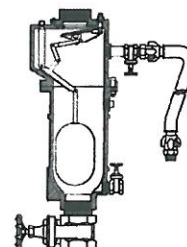


SHOWN WITH OPTIONAL BACKFLUSH ATTACHED

## SEWAI<sup>®</sup> COMBO SEWAGE AIR VALVES - DUAL ORIFICE -

- Performs function of both Air and Vacuum and Pressure Air Release in one valve body.
- Backflushing attachment for cleaning valve available
- 2" thru 4"
- Cast Iron Body 2" with Stainless Steel Trim. 3" and 4" with Bronze Trim and Stainless Steel Float.
- Install on high points of pipeline.

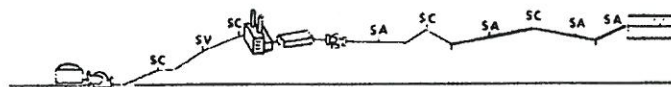
PART NO.	INLET	OUTLET
6650	2"	1"
6651	2"	2"
6652	3"	3"



COMBO SEWAI<sup>®</sup> SHOWN WITH OPTIONAL BACKFLUSH ATTACHED

## TYPICAL VALVE PLACEMENT IN A SEWAGE FORCE MAIN For Particular Applications Consult Factory

SA-AIR RELEASE  
SV-AIR VACUUM  
SC-COMBINATION



# Air Release Valve

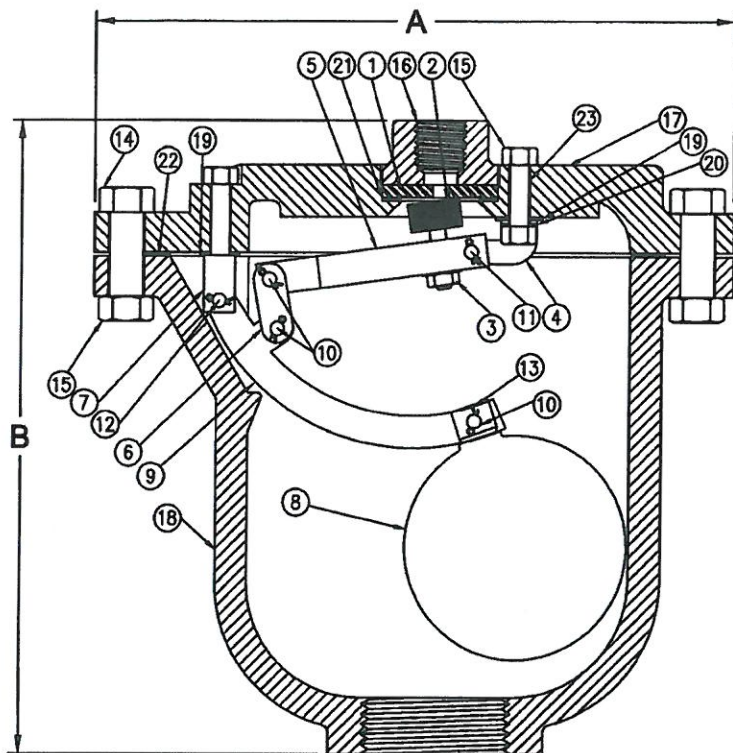
Sizes 2" / 50mm

Miniair®

**FLOMATIC**  
Flomatic Corporation

## Materials

2" or 6" Saver



Optional Orifice Ø	Max. Working Pressure
5/32"	300 PSIG
3/16"	250 PSIG
1/4"	200 PSIG
5/16"	150 PSIG
3/8"	100 PSIG

Item #	Description	Material	ASTM	Item #	Description	Material	ASTM
1	*Seat	PVC	—	13	Cotter Pin	Stainless Steel	A313
2	Valve Plunger	Buna-n	A276	14	Bolt	Steel	J429
3	Nut	Stainless Steel	A276	15	Nut	Steel	A563
4	Valve Fulcrum	Stainless Steel	A582	16	**Top	Cast Iron	A126
5	Valve Lever	Stainless Steel	A240	17	**Flange	Cast Iron	A126
6	Link	Stainless Steel	A240	18	**Body	Cast Iron	A126
7	Ball Fulcrum	Stainless Steel	A582	19	Fulcrum Washer	Fibre	—
8	Float	Stainless Steel	A240	20	Fulcrum Washer	Fibre	—
9	Ball Lever	Stainless Steel	A240	21	Seat Gasket	Fibre	—
10	Bearing Pin	Stainless Steel	A582	22	Gasket	Armstrong	N-8090
11	Bearing Pin	Stainless Steel	A582	23	Bolt	Stainless Steel	A276
12	Bearing Pin	Stainless Steel	A582	* Optional Material Stainless Steel			
				**Optional Material Ductile Iron			

## Dimensions

Max. Temp 150°F (65°C)

Size		Part #	ØA		B		INLET SIZE		OUTLET SIZE		Weight	
Inch	mm		Inch	mm	Inch	mm	Inch	mm	Inch	mm	lbs	kg
2	50	6504	10-1/4	260	10-1/2	267	2	50	1/2	15	45	20

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**FLOMATIC** VALVES

December 29, 1987  
Dwg No: S6503-4 Rev B(6/08)

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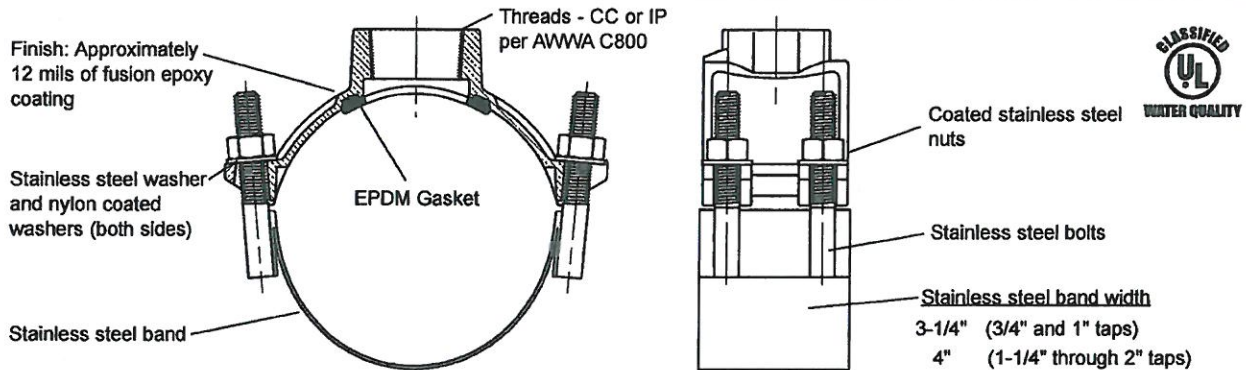


# SUBMITTAL INFORMATION

## Iron Service Saddles - (FC202-xxx-TAP-I style)



### FC202 EPOXY COATED DOUBLE BAND IRON SERVICE SADDLES



NOM. PIPE SIZE	O.D. RANGE	APPROX. WT. LBS.	CATALOG NUMBER	✓ SUBMITTED ITEM(S)
2"	*2.35 - 2.50	2.8	FC202-250-TAP-I	
2-1/2"	*2.75 - 2.90	2.8	FC202-290-TAP-I	
3"	**3.46 - 3.80	4.8	FC202-380-TAP-I	
	**3.80 - 4.25	5.5	FC202-425-TAP-I	
4"	**4.26 - 4.80	5.4	FC202-480-TAP-I	
	**4.74 - 5.26	5.4	FC202-526-TAP-I	
6"	**5.94 - 6.69	5.7	FC202-669-TAP-I	
	**6.63 - 6.90	5.7	FC202-690-TAP-I	✓
	**6.84 - 7.60	6.7	FC202-760-TAP-I	
8"	*7.93 - 8.71	6.8	FC202-871-TAP-I	
	8.63 - 9.05	8.2	FC202-905-TAP-I	
	8.99 - 9.79	8.4	FC202-979-TAP-I	
10"	10.00 - 10.75	9.4	FC202-1075-TAP-I	
	10.75 - 11.10	9.0	FC202-1110-TAP-I	
	11.10 - 12.12	10.8	FC202-1212-TAP-I	
12"	12.00 - 12.75	11.0	FC202-1275-TAP-I	
	12.75 - 13.20	9.0	FC202-1320-TAP-I	
	13.20 - 14.38	12.8	FC202-1438-TAP-I	

OUTLET TAP CODE		
CC (AWWA) THREAD		
THREAD	CODE NUMBER	✓ SUBMITTED ITEM(S)
3/4" CC	CC3	
1" CC	CC4	
1-1/4" CC	Δ CC5	
1-1/2" CC	CC6	
2" CC	CC7	
IP THREAD		
THREAD	CODE NUMBER	✓ SUBMITTED ITEM(S)
3/4" IP	IP3	
1" IP	IP4	
1-1/4" IP	Δ IP5	
1-1/2" IP	IP6	
2" IP	IP7	
2-1/2" IP	IP8	

Δ Contact factory for availability

I = Imported casting

\* Saddles for this pipe range are only available with 3/4" and 1" taps

\*\* Saddles for this pipe range are not available with 2" CC (CC7) or 2-1/2" IP (IP8) taps.

*Sewer*

### FEATURES

- Body made of high strength ductile iron per ASTM A536
- Double wide band and 5/8" UNC threaded bolts of 18-8 type 304 stainless steel 1/2" bolts are furnished on saddles 3" and smaller
- Gasket is EPDM rubber, ASTM D2000
- Finish on saddle body is fusion epoxy coat approximately 12 mils thick
- UL Classified to ANSI/NSF Standard 61

The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability, including specifications, are subject to change without notice. Please verify that your product information is current.



**The Ford Meter Box Company, Inc.**  
P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443  
Phone: 260-563-3171 / Fax: 800-826-3487  
Overseas Fax: 260-563-0167  
www.fordmeterbox.com

11/20/14

Submitted By:

# 758 BRASS BALL VALVE



- ◆ FULL PORT ◆ FORGED BRASS ◆ CHROME PLATED BALL
- ◆ TEFLON SEAT ◆ TWO PIECE BODY

**600 PSI NON-SHOCK WOG 150 PSI SWP**

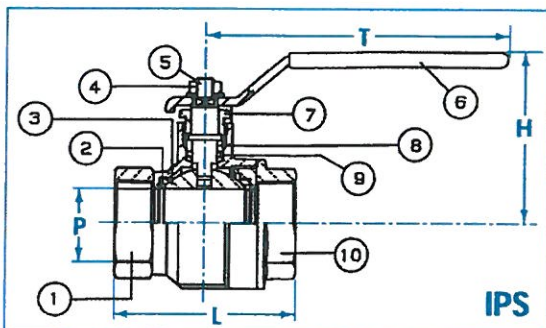
Applications: Residential, Commercial, Light Industrial for Water, Oil, Gas

Threaded Ends Comply with ANSI B2.1  
~~Solder Ends Meet ANSI B16.18~~  
 ISO-9002

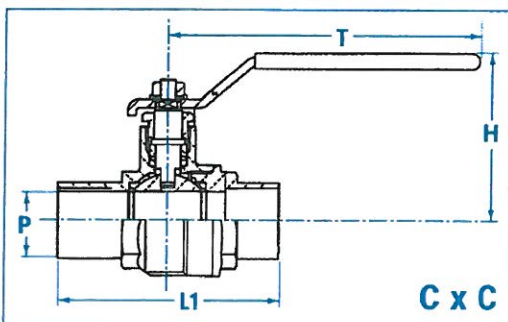


## DIMENSIONS & WEIGHTS

SIZE (inch)	P	T	H	L	L1	WT. (lb)	
						IPS	C-C
1/4"	.31	3.34	1.67	1.61	*	.28	*
3/8"	.39	3.34	1.75	1.78	*	.34	*
1/2"	.59	3.34	1.80	1.96	2.36	.42	.44
3/4"	.79	4.35	2.29	2.25	3.11	.76	.82
1"	.99	4.35	2.44	2.62	3.82	1.06	1.24
1-1/4"	1.26	5.50	3.03	3.09	3.90	1.84	1.86
1-1/2"	1.57	5.50	3.29	3.55	4.54	2.74	2.74
2"	1.97	5.50	3.57	4.21	5.46	3.66	3.48
2-1/2"	2.56	9.44	4.94	5.32	*	8.08	*
3"	3.14	9.44	5.40	6.20	*	11.84	*
4"	3.85	9.44	5.90	7.00	*	18.25	*



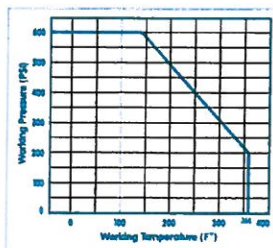
IPS



C x C

## MATERIAL SPECIFICATIONS

NO.	PART	MATERIAL	ASTM SPEC
1	Body	Forged Brass	B124-C37700
2	Seat	Teflon	PTFE
3	Ball	Brass Chrome Plated	B124-C37700
4	Handle Nut	Brass	B124-C37700
5	Stem	Brass	B124-C37700
6	Handle	Steel	A283-D
7	Stem Gland	Brass	B124-C37700
8	Gland	Brass	B124-C37700
9	Stem Seal	Teflon	PTFE
10	End Plug	Forged Brass	B124-C37700



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